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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/734,856	12/12/2000	Masatsugu Takeuchi	FUJI 18.099	4740
26304	7590	08/20/2004	EXAMINER	
KATTEN MUCHIN ZAVIS ROSENMAN			PERILLA, JASON M	
575 MADISON AVENUE			ART UNIT	
NEW YORK, NY 10022-2585			PAPER NUMBER	

2634

DATE MAILED: 08/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/734,856

Applicant(s)

TAKEUCHI ET AL.

Examiner

Jason M Perilla

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 9 is/are rejected.
- 7) ☒ Claim(s) 4-6, 8 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-10 are pending in the instant application.

Response to Arguments/Amendments

2. Applicant's arguments, see page 8, filed June 21, 2004, with respect to the rejection(s) of claim(s) 1 and 2 under 35 U.S.C. § 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Tran et al (US 5715276).

Information Disclosure Statement

3. The US Patent Application Number 09/322,444 filed May 28, 1999 has been considered and is cited on the attached PTO-892 form. Thereby, the cited reference is of record in the file.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Tran et al (US 5715276; hereafter "Tran").

Regarding claim 1, Trans discloses by figure 2 a correlator apparatus comprising a plurality of received-signal registers (51, 52) which receive and store therein a plurality of respective received-signal sequences (col. 9, lines 35-50), a selector which selects one of the received signal sequences stored in said received signal registers (57), at

Art Unit: 2634

least one code register which stores therein a de-spreading-code sequence (53), a multiplication circuit which multiplies the selected one of the received-signal sequences by the de-spreading-code sequence (54), and a summation circuit which obtains a sum of results of the multiplication to obtain a correlation between the selected one of the received-signal sequences and the de-spreading-code sequence (55).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tran in view of Struhsaker (US 5966411).

Regarding claim 2, Tran discloses the limitations of claim 1 as provided above. Tran does not disclose a correlation apparatus wherein the reference code register includes a plurality of code registers which store therein a plurality of respective de-spreading-code sequences, and the apparatus further comprising a selector which selects one of said plurality of code registers to select and supply the de-spreading-code sequence to the multiplication circuit. However, Struhsaker teaches by figure 2 a parallel correlation apparatus (22) having several de-spreading code sequence registers (110, 112, 114, 116) available with different de-spreading code sequences (col. 5, lines 5-20). Struhsaker thus teaches a parallel correlator wherein several reference registers and several received-signal registers are used in parallel. Given the apparatus of Tran

having "parallel switched" receive-signal registers, it is obvious in view of the correlation apparatus of Struhsaker using a plurality of reference registers that both the plurality of receive-signal and reference-signal registers could be switched about one multiplication and summation circuit to reduce circuit complexity and power requirements. Therefore, it would have been obvious for one having ordinary skill in the art at the time which the invention was made to utilize a switched plurality of reference registers as taught by Struhsaker in the correlation apparatus of Tran because the plurality of switched reference registers could be used to make correlations against the plurality of switched receive-registers with the use of only one multiplication and summation circuit to save on the design complexity and power requirements.

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tran.

Regarding claim 3, Tran discloses the limitations of claim 1 as applied above. Further, Tran discloses a delay-profile-holding (fig. 1, refs. 38 and/or 39; col. 8, lines 12-20) unit which generates a delay profile (fig. 4; col. 8, lines 63-68) based on correlations obtained by the summation circuit (fig. 1, ref. 37); and a path-timing-detection circuit (fig. 1, ref. 40) which detects a path timing or start data signal by detecting a peak of the delay profile (col. 9, lines 6-15). The frame matched filter is considered a delay-profile-holding unit because it generates a delay profile or peak profile according to figure 4. The frame processor is considered to be a path-timing-detection circuit because it uses the delay profile to generate a path timing by the detected peak of the delay profile. Here, the path timing is the correct phase relationship between the incoming received spread signal for despreading and the reference spreading code.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tran in view of Komatsu (US 6094449).

Regarding claim 7, Tran discloses by figure 2 an apparatus for obtaining a correlation comprising: a first shift register configured to store a first received signal (51); a second shift register configured to store a second received signal (52); a selector unit configured to selectively output one of the first received signal and the second received signal (57); and a control unit (46) configured to cause said selector unit to output the first received signal and to cause the correlation calculating unit to calculate a correlation with respect to the first received signal, followed by causing said selector unit to output the second received signal and by causing the correlation calculating unit to calculate a correlation with respect to the second received signal (col. 9, lines 35-50). Tran does not explicitly disclose that the correlation calculating unit calculates the correlation by shifting, relative to a de-spreading code, a phase of a received signal spread by a spreading code. However, various correlation shifting techniques are known and used in the art, and Komatsu teaches by figure 4 a correlation calculating unit which calculates the correlation by shifting, relative to a de-spreading code, a phase of a received signal spread by a spreading code (col. 2, lines 10-25). Further, such a correlation technique is obvious to one skilled in the art because it is a simple implementation wherein the received signal spread code is time shifted across the reference spread code as it is received. Therefore, it would have been obvious to one having ordinary skill in the art at the time which the invention was made to utilize a correlation technique as taught by Komatsu as the correlation technique of Tran

because it allows the received signal spread code to be correlated with the static reference spread code as it is being received.

10. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tran in view of Komatsu and in further view of Struhsaker.

Regarding claim 2, Tran in view of Komatsu disclose the limitations of claim 7 as provided above. Tran in view of Komatsu does not disclose that the first received signal is a signal spread by a first spreading code and the second received signal is a signal spread by a second spreading code, said apparatus further comprising a de-spreading code selecting unit configured to select a first de-spreading code corresponding to the first spreading code for correlation calculation of the first received signal, and to select a second de-spreading code corresponding to the second spreading code for correlation calculation of the second received signal. However, Struhsaker teaches by figure 2 a parallel correlation apparatus (22) having several de-spreading code sequence registers (110, 112, 114, 116) available with different de-spreading code sequences (col. 5, lines 5-20). Struhsaker thus teaches a parallel correlator wherein several reference registers and several received-signal registers are used in parallel. Given the apparatus of Tran in view of Komatsu having "parallel switched" receive-signal registers, it is obvious in view of the correlation apparatus of Struhsaker using a plurality of reference registers that both the plurality of receive-signal and reference-signal registers could be switched about one multiplication and summation circuit to reduce circuit complexity and power requirements. Therefore, it would have been obvious for one having ordinary skill in the art at the time which the invention was made to utilize a switched plurality of reference

Art Unit: 2634

registers as taught by Struhsaker in the correlation apparatus of Tran in view of Komatsu because the plurality of switched reference registers could be used to make correlations against the plurality of switched receive-registers with the use of only one multiplication and summation circuit to save on the design complexity and power requirements.

Allowable Subject Matter

11. Claims 4-6, and 8, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art not relied upon above is cited to further show the state of the art with respect to parallel correlators.

U.S. Pat. No. 5237586 to Bottomley.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M Perilla whose telephone number is (703) 305-0374. The examiner can normally be reached on M-F 8-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Chin can be reached on (703) 305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jason M. Perilla
August 10, 2004

jmp



CHIEH M. FAN
PRIMARY EXAMINER